```
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFF                 111111           111111        AAA         AAA
FFF                 111111           111111        AAA         AAA
FFF                 111111           111111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                 111111111        111111111     AAA         AAA
FFF                 111111111        111111111     AAA         AAA
FFF                 111111111        111111111     AAA         AAA
```

```
**FILE**ID**MAKACC                                                  F  1



          MM      MM    AAAAAA    KK      KK    AAAAAA      CCCCCCCC    CCCCCCCC
          MM      MM    AAAAAA    KK      KK    AAAAAA      CCCCCCCC    CCCCCCCC
          MMMM  MMMM  AA      AA  KK      KK  AA      AA  CC          CC
          MMMM  MMMM  AA      AA  KK      KK  AA      AA  CC          CC
          MM  MM  MM  AA      AA  KK    KK    AA      AA  CC          CC
          MM  MM  MM  AA      AA  KK    KK    AA      AA  CC          CC
          MM      MM  AA      AA  KKKKKK      AA      AA  CC          CC
          MM      MM  AA      AA  KKKKKK      AA      AA  CC          CC
          MM      MM  AAAAAAAAAA  KK    KK    AAAAAAAAAA  CC          CC
          MM      MM  AAAAAAAAAA  KK    KK    AAAAAAAAAA  CC          CC
          MM      MM  AA      AA  KK      KK  AA      AA  CC          CC              ....
          MM      MM  AA      AA  KK      KK  AA      AA  CC          CC              ....
          MM      MM  AA      AA  KK      KK  AA      AA    CCCCCCCC    CCCCCCCC      ....
          MM      MM  AA      AA  KK      KK  AA      AA    CCCCCCCC    CCCCCCCC      ....

          LL            IIIIII      SSSSSSSS
          LL            IIIIII      SSSSSSSS
          LL              II      SS
          LL              II      SS
          LL              II      SS
          LL              II      SS
          LL              II        SSSSSS
          LL              II        SSSSSS
          LL              II              SS
          LL              II              SS
          LL              II              SS
          LL              II              SS
          LLLLLLLLLL    IIIIII    SSSSSSSS
          LLLLLLLLLL    IIIIII    SSSSSSSS
```

MAK
VO4

```
0 MODULE MAKACC (
0               LANGUAGE (BLISS32),
0               IDENT = 'V04-000'
0               ) =
1 BEGIN
1
1 !
1 !****************************************************************************
1 !*                                                                          *
1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                 *
1 !*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                  *
1 !*  ALL RIGHTS RESERVED.                                                    *
1 !*                                                                          *
1 !*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED   *
1 !*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE   *
1 !*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER   *
1 !*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY   *
1 !*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY   *
1 !*  TRANSFERRED.                                                            *
1 !*                                                                          *
1 !*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE   *
1 !*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT   *
1 !*  CORPORATION.                                                            *
1 !*                                                                          *
1 !*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS   *
1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                 *
1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1
1 !++
1 !
1 ! FACILITY:  F11ACP Structure Level 1
1 !
1 ! ABSTRACT:
1 !
1 !       This routine makes the necessary hookups in the I/O database to
1 !       reflect a new file access.
1 ! ENVIRONMENT:
1 !
1 !       STARLET operating system, including privileged system services
1 !       and internal exec routines. This routine must be called
1 !       in kernel mode.
1 !
1 !--
1 !
1 !
1 ! AUTHOR:  Andrew C. Goldstein,  CREATION DATE:  20-Dec-1976  17:28
1 !
1 ! MODIFIED BY:
1 !
1 !       V02-001 LMP0005         L. Mark Pilant,         29-Dec-1981  15:05
1 !               Add support for Cathedral windows.
1 !
1 !       A0100   ACG0001         Andrew C. Goldstein,    10-Oct-1978  20:01
1 !               Previous revision history moved to F11A.REV
1 !
```

```
1 !**
1
1
1 LIBRARY 'SYS$LIBRARY:LIB.L32';
1 REQUIRE 'SRC$:FCPDEF.B32';
```

```
1 GLOBAL ROUTINE MAKE_ACCESS (FCB, WINDOW, ABD) : NOVALUE =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine makes the necessary hookups in the I/O database to
1 !       reflect a new file access.
1 !
1 ! CALLING SEQUENCE:
1 !       MAKE_ACCESS (ARG1, ARG2, ARG3)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: address of FCB to access
1 !       ARG2: address of window to link up
1 !       ARG3: address of buffer descriptors
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_VCB: VCB of volume in process
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       VCB transaction count bumped, access counts in FCB adjusted,
1 !       FCB and window hooked up.
1 !
1 !--
1
2 BEGIN
2
2 MAP
2       FCB             : REF BBLOCK,   ! FCB arg
2       WINDOW          : REF BBLOCK,   ! window arg
2       ABD             : REF BBLOCKVECTOR [,ABD$C_LENGTH];
2                                       ! buffer descriptor arg
2
2 LOCAL
2       WINDOW_SEGMENT  : REF BBLOCK;   ! address of the current window segment
2
2 EXTERNAL
2       CLEANUP_FLAGS   : BITVECTOR,    ! cleanup action flags
2       CURRENT_VCB     : REF BBLOCK,   ! VCB
2       PMS$GL_OPEN     : ADDRESSING_MODE (ABSOLUTE),
2                                       ! system count of currently open files
2       PMS$GL_OPENS    : ADDRESSING_MODE (ABSOLUTE);
2                                       ! system count of files opened
2
2 ! If the access count in the FCB is zero, hook it into the FCB list,
2 ! since it is not there yet. If, however, the directory LRU
2 ! bit is set, the FCB is already in the list. Then clear the bit and
```

```
;  121          0434  2 ! credit an entry to the LRU count.
;  122          0435  2 !
;  123          0436  2
;  124          0437  2 IF .FCB[FCB$W_ACNT] EQL 0
;  125          0438  2 THEN
;  126          0439  3     BEGIN
;  127          0440  3     IF NOT .FCB[FCB$V_DIR]
;  128          0441  3     THEN INSQUE (.FCB, .CURRENT_VCB[VCB$L_FCBBL])
;  129          0442  3     ELSE
;  130          0443  4         BEGIN
;  131          0444  4         FCB[FCB$V_DIR] = 0;
;  132          0445  4         CURRENT_VCB[VCB$B_LRU_LIM] = .CURRENT_VCB[VCB$B_LRU_LIM] + 1;
;  133          0446  3         END;
;  134          0447  2     END;
;  135          0448  2
;  136          0449  2 ! Now hook the window onto the FCB and adjust the access counts
;  137          0450  2 ! according to the access control bits in the window.
;  138          0451  2 !
;  139          0452  2
;  140          0453  2 WINDOW_SEGMENT = .WINDOW;
;  141          0454  2 DO
;  142          0455  3     BEGIN
;  143          0456  3     INSQUE (.WINDOW_SEGMENT, .FCB[FCB$L_WLBL]);
;  144          0457  3     WINDOW_SEGMENT = .WINDOW_SEGMENT[WCB$L_LINK];
;  145          0458  3     END
;  146          0459  2 UNTIL .WINDOW_SEGMENT EQL 0;
;  147          0460  2 FCB[FCB$W_ACNT] = .FCB[FCB$W_ACNT] + 1; ! bump access count
;  148          0461  2
;  149          0462  2 IF .WINDOW[WCB$V_NOREAD]
;  150          0463  2     THEN FCB[FCB$V_EXCL] = 1;            ! set exclusive access
;  151          0464  2
;  152          0465  2 IF .WINDOW[WCB$V_NOWRITE]
;  153          0466  2     THEN FCB[FCB$W_LCNT] = .FCB[FCB$W_LCNT] + 1; ! no writers
;  154          0467  2
;  155          0468  2 IF .WINDOW[WCB$V_NOTRUNC]
;  156          0469  2     THEN FCB[FCB$W_TCNT] = .FCB[FCB$W_TCNT] + 1; ! no truncates
;  157          0470  2
;  158          0471  2 ! For a write access, bump the writer count. If this is the
;  159          0472  2 ! first write, and the file is the index file or the storage map, set
;  160          0473  2 ! the appropriate flag in the VCB.
;  161          0474  2 !
;  162          0475  2
;  163          0476  2 IF .WINDOW[WCB$V_WRITE]
;  164          0477  2 THEN
;  165          0478  3     BEGIN
;  166          0479  3     IF .FCB[FCB$W_WCNT] EQL 0
;  167          0480  3     THEN
;  168          0481  4         BEGIN
;  169          0482  4         IF .FCB[FCB$W_FID_NUM] EQL 1
;  170          0483  4             THEN CURRENT_VCB[VCB$V_WRITE_IF] = 1;
;  171          0484  4         IF .FCB[FCB$W_FID_NUM] EQL 2
;  172          0485  4             THEN CURRENT_VCB[VCB$V_WRITE_SM] = 1;
;  173          0486  3         END;
;  174          0487  3     FCB[FCB$W_WCNT] = .FCB[FCB$W_WCNT] + 1;
;  175          0488  2     END;
;  176          0489  2
;  177          0490  2 ! Count the access in the volume transaction count and return
;  178          0491  2 ! the window address for the user's CCB.
;  179          0492  2 !
;  180          0493  2
;  181          0494  2 PMS$GL_OPEN = .PMS$GL_OPEN + 1;         ! bump open file count
;  182          0495  2 PMS$GL_OPENS = .PMS$GL_OPENS + 1;       ! bump count of opens
;  183          0496  2 CURRENT_VCB[VCB$W_TRANS] = .CURRENT_VCB[VCB$W_TRANS] + 1;
;  184          0497  2
;  185          0498  2 ABD[ABD$C_WINDOW, ABD$W_COUNT] = 4;     ! enable write-back
;  186          0499  2 .ABD[ABD$C_WINDOW, ABD$Q_TEXT] + ABD[ABD$C_WINDOW, ABD$W_TEXT] + 1 = .WINDOW;
;  187          0500  2                                         ! put window address in buffer text
;  188          0501  2
;  189          0502  2 ! Mark the access complete in the cleanup action flags.
;  190          0503  2 !
;  191          0504  2
;  192          0505  2 CLEANUP_FLAGS[CLF_DEACCESS] = 1;
;  193          0506  2
;  194          0507  1 END;                                    ! end of routine MAKE_ACCESS


                                                  .TITLE  MAKACC
                                                  .IDENT  \V04-000\

                                                  .EXTRN  CLEANUP_FLAGS, CURRENT_VCB
                                                  .EXTRN  PMS$GL_OPEN, PMS$GL_OPENS

                                                  .PSECT  $CODE$,NOWRT,2

                              000C 00000          .ENTRY  MAKE_ACCESS, Save R2,R3                        ; 0377
             53     0000G  CF    9E 00002         MOVAB   CURRENT_VCB, R3                                ;
             51        04  AC    D0 00007         MOVL    FCB, R1                                        ; 0437
                       1A  A1    B5 0000B         TSTW    26(R1)                                         ;
                           14    12 0000E         BNEQ    2$                                             ;
             50            63    D0 00010         MOVL    CURRENT_VCB, R0                                ; 0441
             06        22  A1    E8 00013         BLBS    34(R1), 1$                                     ; 0440
       04    B0            61    0E 00017         INSQUE  (R1), @4(R0)                                   ; 0441
                           07    11 0001B         BRB     2$                                             ;
       22    A1            01    8A 0001D 1$:     BICB2   #1, 34(R1)                                     ; 0444
                       49  A0    96 00021         INCB    73(R0)                                         ; 0445
             51        08  AC    D0 00024 2$:     MOVL    WINDOW, WINDOW_SEGMENT                         ; 0453
             50        04  AC    D0 00028 3$:     MOVL    FCB, R0                                        ; 0456
       14    B0            61    0E 0002C         INSQUE  (WINDOW_SEGMENT), @20(R0)                      ;
             51        20  A1    D0 00030         MOVL    32(WINDOW_SEGMENT), WINDOW_SEGMENT             ; 0457
                           F2    12 00034         BNEQ    3$                                             ; 0459
             50        04  AC    D0 00036         MOVL    FCB, R0                                        ; 0460
                       1A  A0    B6 0003A         INCW    26(R0)                                         ;
             52        08  AC    D0 0003D         MOVL    WINDOW, R2                                     ; 0462
 04    15    A2            02    E1 00041         BBC     #2, 21(R2), 4$                                 ;
       22    A0            08    88 00046         BISB2   #8, 34(R0)                                     ; 0463
             03        14  A2    E9 0004A 4$:     BLBC    20(R2), 5$                                     ; 0465
                       1E  A0    B6 0004E         INCW    30(R0)                                         ; 0466
 03    15    A2            03    E1 00051 5$:     BBC     #3, 21(R2), 6$                                 ; 0468
                       20  A0    B6 00056         INCW    32(R0)                                         ; 0469
 22    0B    A2            01    E1 00059 6$:     BBC     #1, 11(R2), 9$                                 ; 0476
                       1C  A0    B5 0005E         TSTW    28(R0)                                         ; 0479
                           1A    12 00061         BNEQ    8$                                             ;
             01        24  A0    B1 00063         CMPW    36(R0), #1                                     ; 0482
                           07    12 00067         BNEQ    7$                                             ;
```

```
                               51            63  D0 00069          MOVL     CURRENT_VCB, R1                                          ; 0483
                       0B      A1            01  88 0006C          BISB2    #1, 11(R1)                                               ;
                       02         24         A0  B1 00070 7$:      CMPW     36(R0), #2                                               ; 0484
                                             07  12 00074          BNEQ     8$                                                       ;
                               51            63  D0 00076          MOVL     CURRENT_VCB, R1                                          ; 0485
                       0B      A1            02  88 00079          BISB2    #2, 11(R1)                                               ;
                                  1C         A0  B6 0007D 8$:      INCW     28(R0)                                                   ; 0487
                             00000000G       9F  D6 00080 9$:      INCL     @#PMS$GL_OPEN                                            ; 0494
                             00000000G       9F  D6 00086          INCL     @#PMS$GL_OPENS                                           ; 0495
                               50            63  D0 0008C          MOVL     CURRENT_VCB, R0                                          ; 0496
                                  0C         A0  B6 0008F          INCW     12(R0)                                                   ;
                               51 0C         AC  D0 00092          MOVL     ABD, R1                                                  ; 0498
                       02      A1            04  B0 00096          MOVW     #4, 2(R1)                                                ;
                               50            61  3C 0009A          MOVZWL   (R1), R0                                                 ; 0499
                                  01 A140    9F  9F 0009D          PUSHAB   1(R1)[R0]                                                ;
                               9E            52  D0 000A1          MOVL     R2, @(SP)+                                               ;
                     0000G     CF            01  88 000A4          BISB2    #1, CLEANUP_FLAGS+2                                      ; 0505
                                                 04 000A9          RET                                                               ; 0507

; Routine Size:  170 bytes,    Routine Base:  $CODE$ + 0000


;  195          0508  1
;  196          0509  1 END
;  197          0510  0 ELUDOM




;                                   PSECT SUMMARY
;
;       Name                        Bytes                         Attributes
;
;   $CODE$                              170  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)




;                            Library Statistics
;
;                                                -------- Symbols --------        Pages        Processing
;       File                                     Total    Loaded   Percent        Mapped       Time
;
;   _$255$DUA28:[SYSLIB]LIB.L32;1                18619        23         0        1000           00:02.0




;                                     COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:MAKACC/OBJ=OBJ$:MAKACC MSRC$:MAKACC/UPDATE=(ENH$:MAKACC)
```

```
MAK
Sym

AQB
BAD
BAD
BIT
DIG
DIR
DOT
FCB
FIB
FIB
FIB
FIB
HEA
HI
IND
LC
LEN
LIB
LO
MAR
MVL
NAM
NMB
NMB
NMB
NMB
NMB
NMB
NMB
NMB
NMB
PER
RVT
SEM
SS$
SS$
STA
STR
TYP
UC
VCB
WCB


PSE
---

$AE
$CO
```

```
; Size:           170 code + 0 data bytes
; Run Time:          00:08.2
; Elapsed Time:      00:26.4
; Lines/CPU Min:      3754
; Lexemes/CPU-Min: 16181
; Memory Used:  114 pages
; Compilation Complete
```

```
MAK
VAX



Pha
---
Int
Com
Pas
Sym
Pas
Sym
Pse
Cro
Ass

The
183
The
489
13



Mac
---
_$2
_$2
TOT

278

The

MAC
```

0166 AH-BT13A-SE
VAX/VMS V4.0

DIGITAL EQUIPMENT CORPORATION
CONFIDENTIAL AND PROPRIETARY

REQUEU
LIS

RWATTR
LIS

MODIFY
LIS

SCHFCB
LIS

MAKACC
LIS

MPWIND
LIS

MAPVBN
LIS

PMS
LIS

RDHEDR
LIS

RWVB
LIS

RETDIR
LIS

RDBLOK
LIS

SMALOC
LIS

MOUNT
LIS

MAKNMB
LIS

MAKSTR
LIS

NXTHDR
LIS